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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,269	03/12/2004	Atsushi Watanabe	0392.1881	5867

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EXAMINER	
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ART UNIT	PAPER NUMBER
3664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,269	WATANABE ET AL.	
	Examiner	Art Unit	
	NICHOLAS KISWANTO	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *03 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *1-5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 6, 8, 12 – 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. (6,519,507), in view of Karakama et al. (WO90/06836).

As to claim 6, Noguchi/507 shows a teaching position correcting apparatus for correcting a teaching point position of a robot operation program, comprising work tool moving/stopping means for allowing an work tool (col 3, line 49 - 54) mounted on an arm tip end (col 3, line 6 - 7) of said robot to move toward a teaching point of said robot operation program and to stop said work tool before it reaches the teaching point (col 4, line 1 - 6), jog feed means for moving said robot by jog feeding (col 4, line 36 - 37) from a position Where said work tool is stopped by said Work tool moving/stopping means (col 4, line 29 - 35), positional relation presenting means for presenting, to an operator, and a positional relation between said work tool and an operation target (col 4, line 33 - 34).

Noguchi/507 does not show a teaching position correction instructing means for commanding to correct a teaching position.

Karakama/836 shows a robot system that uses a commonly well- known method in the art of using a teaching position correction instructing means for commanding to correct a teaching position (col 5, line 34 - col 6, line 4).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 by using a teaching position correction instructing means for commanding to correct a teaching position as demonstrated by Karakama/836.

As to claim 8, Noguchi/507 further shows a jog feed means that allows the robot to move along a jog feed coordinate system based on an attitude of said work tool (col 3, line 38.- 41).

As to claim 12, Noguchi/507 does not shows a teaching position correcting apparatus further comprising means for extracting a teaching point to be taught and corrected from a program.

Karakama/836 shows a commonly well-known method in the art of using a teaching position correcting apparatus comprising means for extracting a teaching point to be taught and corrected from a program (col 6, line 31 - col 7, line 6).

It would have been obvious to one of ordinary skill in the art to modify Noguchi/507's invention by adding the commonly well-known method in the art of using a teaching position correcting apparatus comprising means for extracting a

teaching point to be taught and corrected from a program as demonstrated by Karakama/836.

As to claim 13, Noguchi/507 does not show a teaching position correcting apparatus comprising means for designating a teaching point to be taught and corrected from a program.

Karakama/836 shows a commonly well-known method in the art of using a teaching position correcting apparatus comprising means for designating a teaching point to be taught (col 5, line 12 - 15) and corrected from a program (col 5, 34 - col 6, line 4).

It would have been obvious to one of ordinary skill in the art to modify Noguchi/507's invention by adding the commonly well-known method in the art of using a teaching position correcting apparatus comprising means for designating a teaching point to be taught and corrected from a program as demonstrated by Karakama/836.

As to claim 14, Noguchi/507 does not show a teaching position correcting apparatus comprising means for automatically correcting a next and subsequent teaching point positions based on a position correcting amount of one or more teaching points whose teaching position was corrected.

Karakama/836 shows a commonly well-known method in the art of using a teaching position correcting apparatus comprising means for automatically correcting a next and subsequent teaching point positions (col 6, line 32 - col 7,

line 5) based on a position correcting amount of one or more teaching points whose teaching position was corrected (col 7, line 6- 11).

It would have been obvious to one of ordinary skill in the art to modify Noguchi/507's invention by adding the commonly well-known method in the art of using a teaching position correcting apparatus comprising means for automatically correcting a next and subsequent teaching point positions based on a position correcting amount of one or more teaching points whose teaching position was corrected as demonstrated by Karakama/836.

As to claim 15, Noguchi/507 shows a teaching position correcting apparatus for correcting a teaching point position of a robot operation program, comprising work tool moving/stopping means for allowing an work tool mounted (col 3, line 49 - 54) on an arm tip (col 3, line 6 - 7) end of said robot to move toward a teaching point of said robot operation program and to stop said work tool before it reaches the teaching point (col 4, line 1 - 6), jog feed means for moving said robot by jog feeding (col 4, line 36 - 37) from a position where said work tool is stopped by said work tool moving/stopping means (col 4, line 29 - 35).

Noguchi/507 does not show a teaching position correction instructing means for commanding to correct a teaching position, and teaching point position correcting means for automatically correcting a next and subsequent teaching point positions based on a position correcting amount of one or more teaching

points whose teaching position was corrected.

Karakama/836 shows a commonly well-known method in the art of using a teaching position correction instructing means for commanding to correct a teaching position (col 5, line 34 - col 6, line 4), and teaching point position correcting means for automatically correcting a next and subsequent teaching point positions (col 6, line 32 - col 7, line 5) based on a position correcting amount of one or more teaching points whose teaching position was corrected (col 7, line 6 - 11).

It would have been obvious to one of ordinary skill in the art to modify Noguchi/507's invention by adding the commonly well-known method in the art of using a teaching position correction instructing means for commanding to correct a teaching position, and teaching point position correcting means for automatically correcting a next and subsequent teaching point positions based on a position correcting amount of one or more teaching points whose teaching position was corrected as demonstrated by Karakama/836.

As to claim 17, Noguchi/507 shows a teaching position correcting apparatus for correcting a teaching point position of a robot operation program, comprising work tool moving/stopping means for allowing an work tool (col 3, line 49 - 54) mounted on an arm tip end (col 3, line 6 - 7) of said robot to move toward a teaching point of said robot operation program (col 4, line 1 - 6), and to stop said work tool when the distance between said work tool and said teaching

point becomes shorter than a predetermined distance (col 4, line 14 - 17), jog feed means for moving said robot by jog feeding (col 4, line 36 - 37) from a position where said work tool is stopped by said work tool moving/stopping means (col 4, line 29- 35).

Noguchi/507 does not show a teaching position correction instructing means for commanding to correct a teaching position.

Karakama/836 shows a commonly well-known method in the art of using a teaching position correction instructing means for commanding to correct a teaching position (col 5, line 34 - col 6, line 4).

It would have been obvious to one of ordinary skill in the art to modify Noguchi/507's invention by adding the commonly well-known method in the art of using a teaching position correction instructing means for commanding to correct a teaching position as demonstrated by Karakama/836.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi/507, in view of Karakama/836, further in view of Watanabe et al. (6,763,284).

As to claim 7, Noguchi/507 and Karakama/836 show all elements per claimed invention as described in paragraph regarding claim 6 above. Noguchi/507 shows a teaching position correcting apparatus according to claim 6, wherein said positional relation presenting means includes a work tool tip end which can be attached to and detached from said work tool (col 3, line 49 - 54).

However, Noguchi/507 and Karakama/836 does not show a camera means for capturing the operation target in view, and image display means for presenting an image of said camera means to an operator.

Watanabe/284 shows a camera means (col 3, line 30 - 35) for capturing the operation target in view, and image display means for presenting an image of said camera means to an operator (col 5, line 17 - 27). Watanabe/284 teaches that using these means, it becomes unnecessary to perform a playback motion on an object robot to be taught. Further, it is not required to constitute a model for an off-line teaching, so that a teaching work for a robot can easily be performed (col 3, line 4 - 7).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 and Karakama/836 by adding shows a camera means for capturing the operation target in view, and image display means for presenting an image of said camera means to an operator in order to make it unnecessary to perform a playback motion on an object robot to be taught, and to further make it not required to constitute a model for an off-line teaching, so that a teaching work for a robot can easily be performed, as taught by Watanabe/284 (col 3, line 4 - 7).

4. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi/507, in view of Karakama/836, further in view of Barrows (4,626,013).

As to claim 9, Noguchi/507 and Karakama/836 show all elements per claimed invention as described in paragraph regarding claim 6 above.

However, Noguchi/507 and Karakama/836 do not show a work tool of said robot that includes a movable portion which is driven by a servo mechanism, and said movable portion has a mechanism which comes into contact with the operation target.

Barrows/013 shows a commonly well-known method in the art of using a work tool on a robot that includes a movable portion which is driven by a servo mechanism (col 3, line 54 - 55), and said movable portion has a mechanism which comes into contact with the operation target (col 2, line 46 - 47).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 and Karakama/836 by adding the commonly well-known method in the art of using a work tool on a robot that includes a movable portion which is driven by a servo mechanism, and said movable portion has a mechanism which comes into contact with the operation target as demonstrated by Barrows/013.

As to claim 11, Noguchi/507 and Karakama/836 show all elements per claimed invention as described in paragraph regarding claim 6 above.

However, Noguchi/507 and Karakama/836 do not show a work tool that is a servo hand (39) which grasps an article by a servo mechanism.

Barrows/013 shows a commonly well-known method in the art of using a work tool that is a servo hand (39) which grasps an article by a seryo mechanism. (col 4, line 18 - 20).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 and Karakama/836 by adding the commonly well-known method in the art of using a work tool that is a servo hand which grasps an article by a servo mechanism as demonstrated by Barrows/013.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi/507, in view of Karakama/836, further in view of Flora (6,014,909).

As to claim 10, Noguchi/507 and Karakama/836 show all elements per claimed invention as described in paragraph regarding claim 6 above.

However, Noguchi/507 and Karakama/836 do not show a teaching position correcting apparatus that has a work tool that is a spot welding gun. Flora/909 shows a commonly well-known method in the art of using a teaching position correcting apparatus that has a work tool that is a spot welding gun. (col 2, line 28 - 30).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 and Karakama/836 by adding the commonly well-known method in the art of using a teaching position correcting apparatus that has a work tool that is a spot welding gun as demonstrated by Flora/909.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi/507, in view of Karakama/836, further in view of Watanabe et al. (5,980,082).

As to claim 16, Noguchi/507 and Karakama/836 show all elements per claimed invention as described in paragraph regarding claim 15 above.

However, Noguchi/507 and Karakama/836 do not show a means for calculating an attitude variation amount of the robot work tool at a current teaching point and a next teaching point, and means for judging whether a next and subsequent teaching point positions should be automatically corrected based on the attitude variation amount.

Watanabe/082 shows a commonly well-known method in the art of calculating an attitude variation amount of the robot work tool at a current teaching point and a next teaching point (col 5, line 16 - 2t), and means for judging whether a next and subsequent teaching point positions should be automatically corrected based on the attitude variation amount (col 5, line 21 - 30).

It would have been obvious to one of ordinary skill in the art to modify the invention of Noguchi/507 and Karakama/836 by adding the commonly well-known method in the art of calculating an attitude variation amount of the robot work tool at a current teaching point and a next teaching point, and means for judging whether a next and subsequent teaching point positions should be automatically corrected based on the attitude variation amount as demonstrated by Watanabe/082.

Response to Arguments

7. Applicant's arguments filed 12/3/2007 have been fully considered but they are not persuasive. Applicant states that prior art is inapplicable due to it existing as a computer program rather than an “online” teaching program using a physical robot. Applicant’s claims do not necessarily constitute a physical only, online teaching method. Furthermore, it would have been obvious to one of ordinary skill in the art that applying Noguchi’s method to a physical robot system would have been a trivial matter since it simply requires transferring the code in the offline teaching system to the robot controller and using the robot’s sensors to determine the needed pose from the robot.

Regarding column 4, line 1-6 of Noguchi, position determination is not the only action performed; the robot also moves towards the teaching position and automatically stops before the target point (“the robot **travels on the traveling track** until the distance between the coordinate origin and the movement target point is minimized. That is, as shown in Fig. 2, the robot travels until the robot **directly faces** the movement target point.”).

Regarding applicant's statement that Noguchi does not perform jog feeding of robot, Noguchi explains that "the movement quantities with respect to the remaining three degrees may be determined”, which implies a digital (jog feeding) method of moving work tool towards teaching point.

Applicant also argues that Karakama does not read on claimed invention since Karakama must know the position of teaching points beforehand. However, said argument is moot since applicant's claims do not make a distinction between teaching

points known beforehand or dynamic teaching of teaching points, thus Karakama would still read upon applicant's claims regardless of whether it must know the location of teaching points beforehand or not.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe et al. (2002/0072826) shows a robot arm with a welding tool that can display information to a human operator.

Hirayama et al. (7,136,723) shows a robot arm teaching method where the robot arm moves automatically to a working point and is corrected by a human operator in case of any inaccuracy in position.

Lemelson, et al. (6,898,484) shows a robot teaching method that uses radio signals to reposition a robot arm to the correct teaching point.

De Smet (6,434,449) shows a robot arm that has a variable resolution position sensing device.

Muller (61236,906) shows a robot arm that automatically moves to a working point.

Elfving et al. (6,226,565) shows a robot arm with a servo motor at its end.

Kishi et al. (4,700,118) shows a robot arm that implements Cartesian coordinates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICHOLAS KISWANTO whose telephone number is (571)270-3269. The examiner can normally be reached on Monday - Friday, 8AM - 5PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571) 272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nicholas Kiswanto
February 5, 2008
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